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REPLACEMENT DRAWING

FIGURE 1

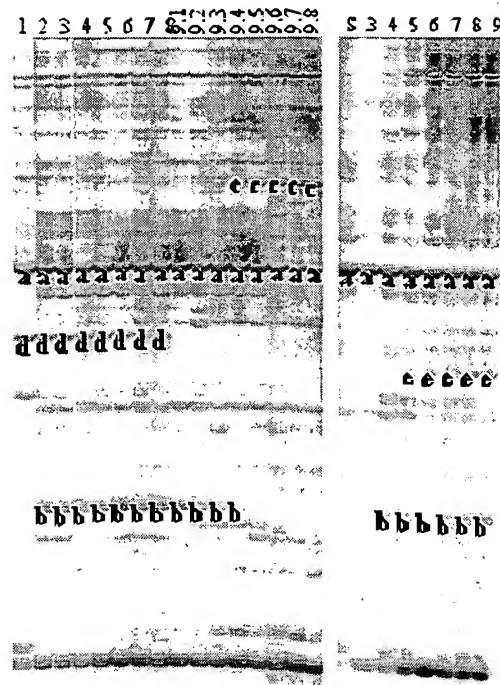


Figure 1. Differential display of loblolly pine zygotic and somatic embryos.

FIGURE 2

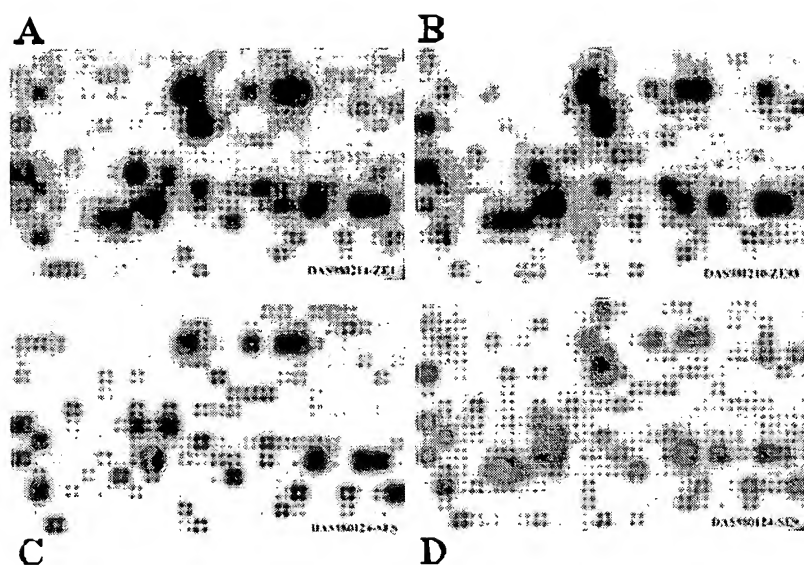


Figure 2. Detection of gene expression by high-density array Southern hybridization.

FIGURE 3

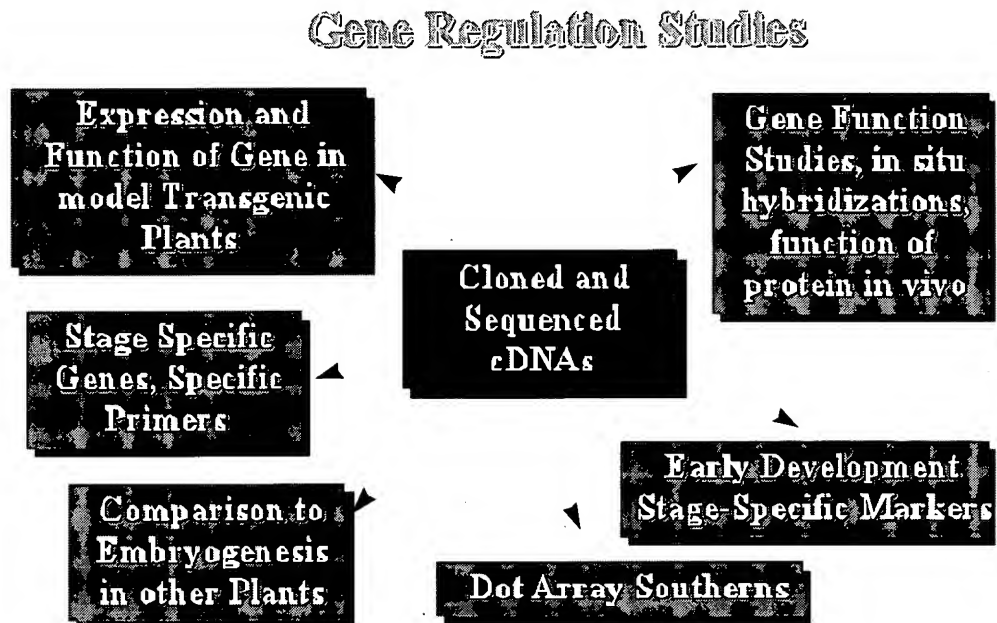


Figure 3. Gene regulation studies arising from the cDNA cloning of genes expressed in embryos.

FIGURE 4

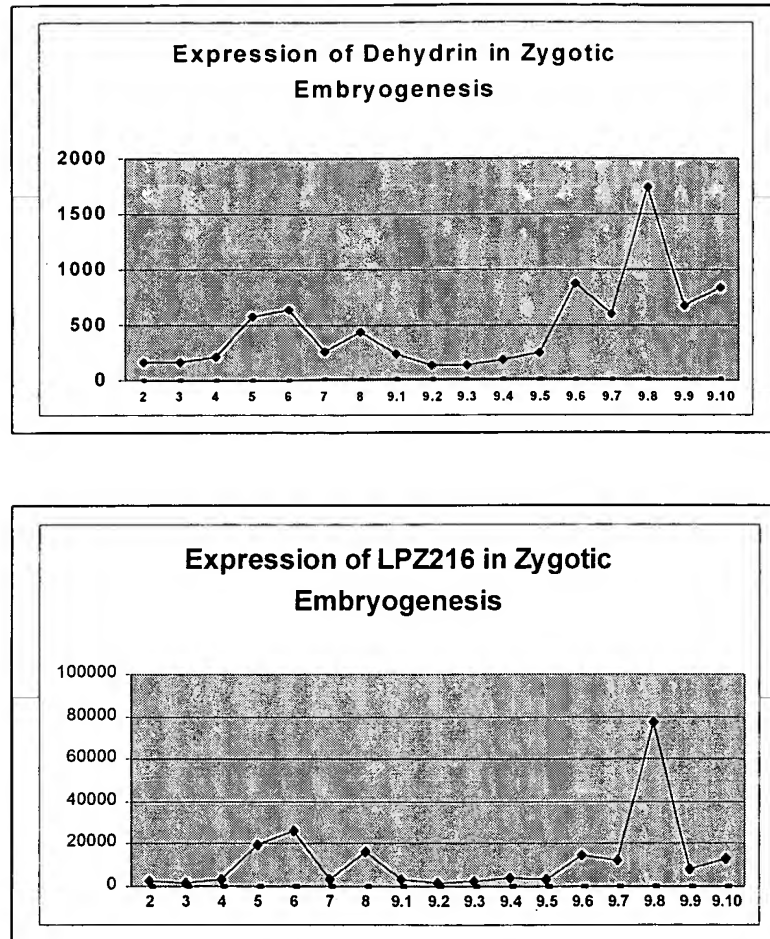


Figure 4. Graphical representation of hybridization of 'dehydrin' and LPZ-216 cDNA probes to total loblolly pine RNA.

FIGURE 5

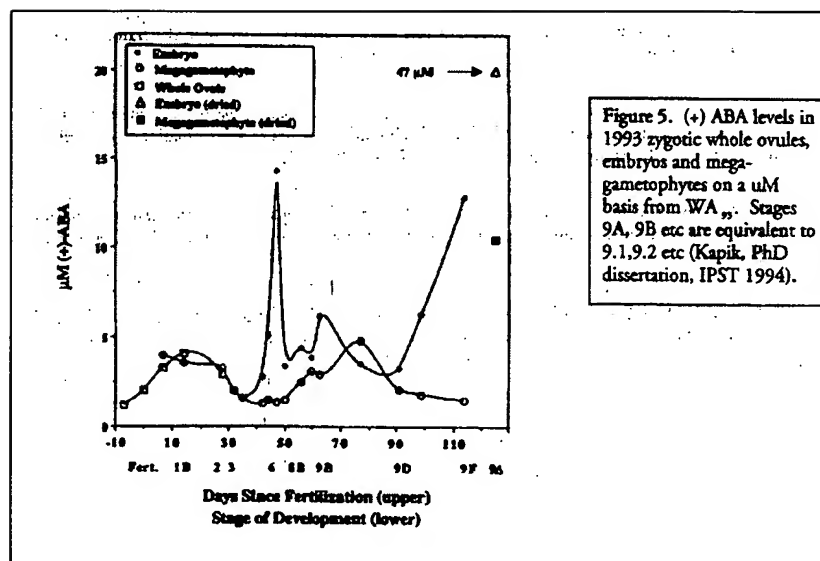


Figure 5. Determination of ABA concentration of loblolly pine embryos as described more fully by Kapik et al., *Tree Physiology* 15:485-490 (1995)

FIGURE 6

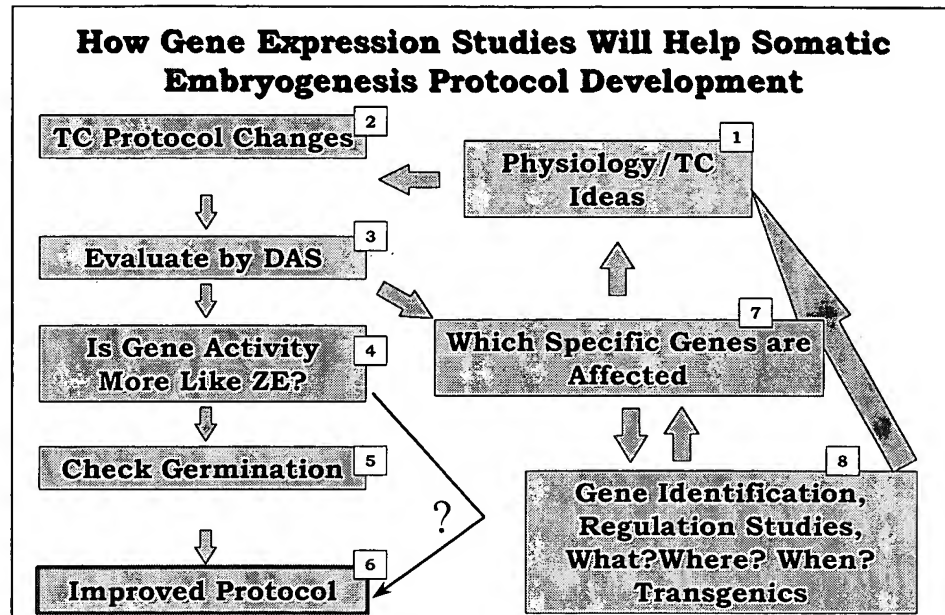


Figure 6. Scheme showing use of gene studies to improve somatic embryogenesis.

FIGURE 7

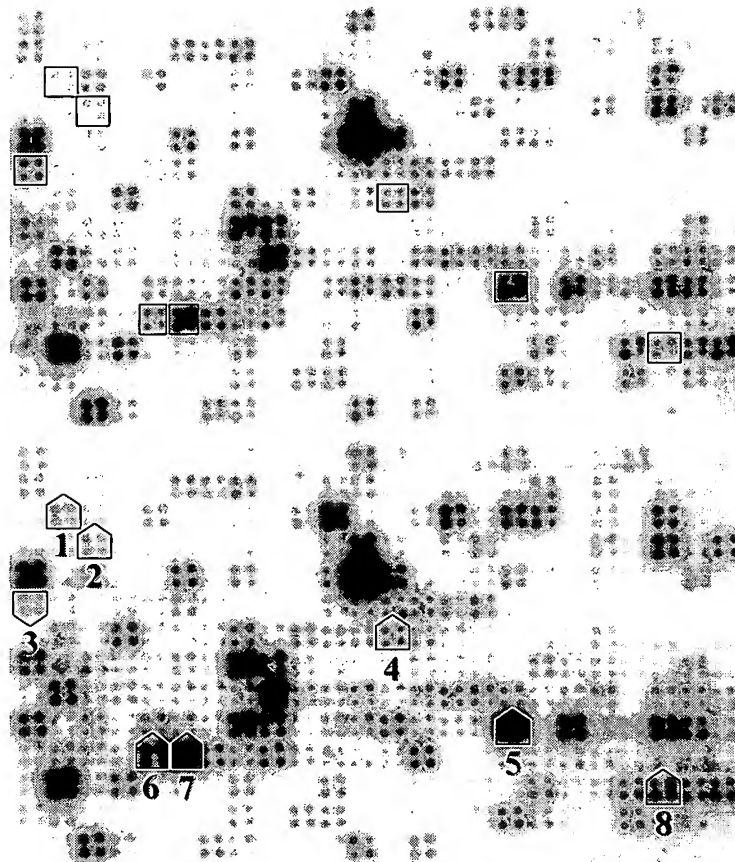


Figure 7. Detection of gene expression by high density array Southern hybridization.

FIGURE 8

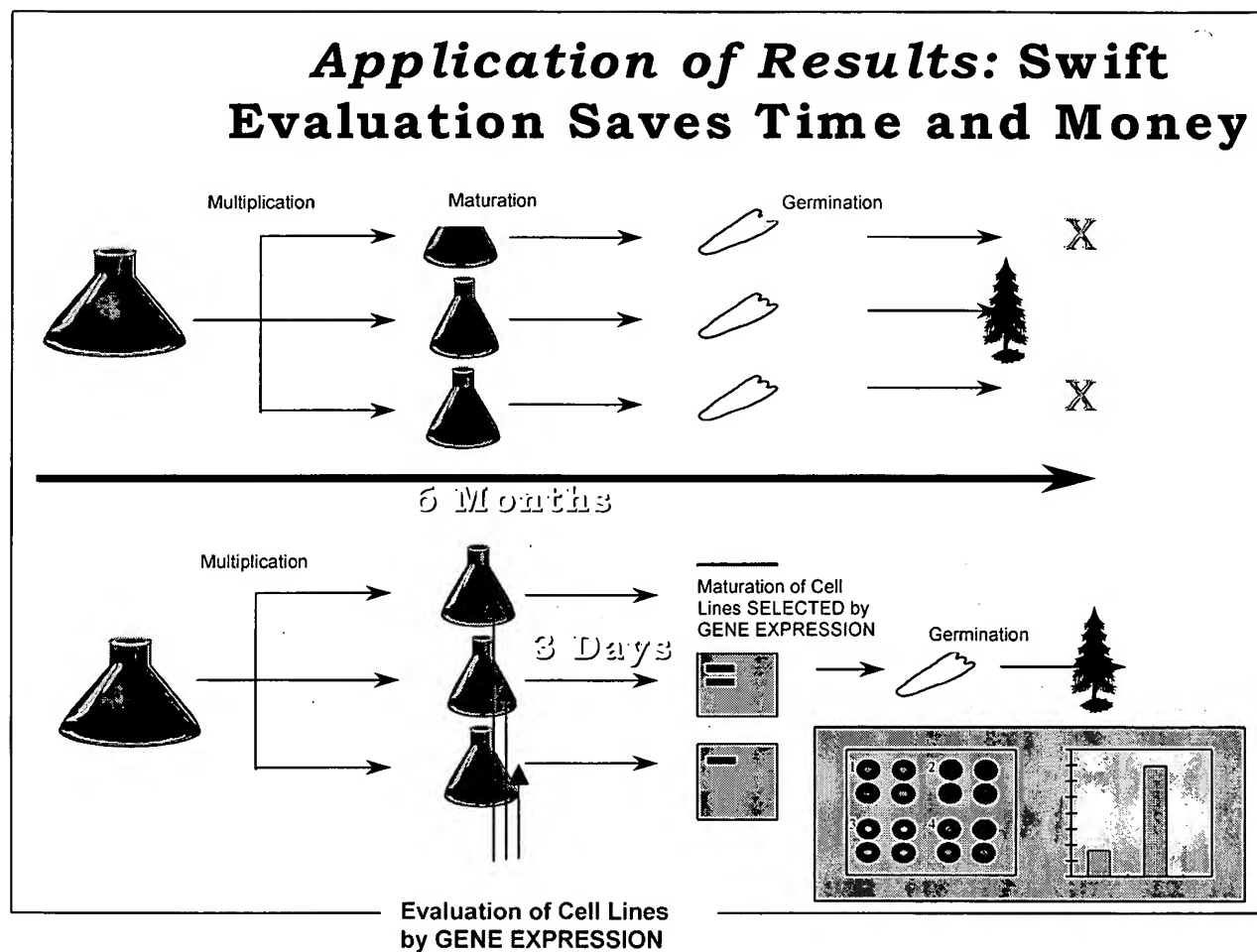
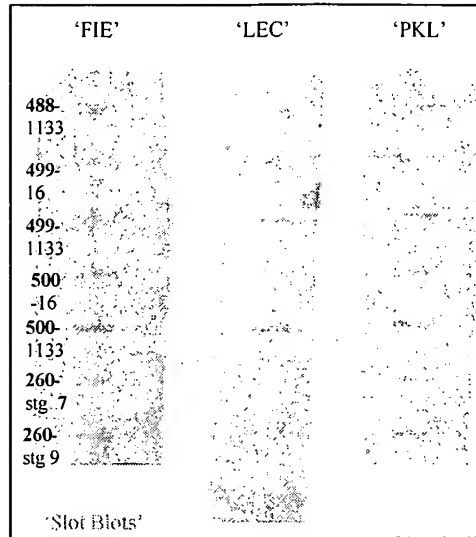


Figure 8. Application of results.

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FIGURE 9

A.



B.

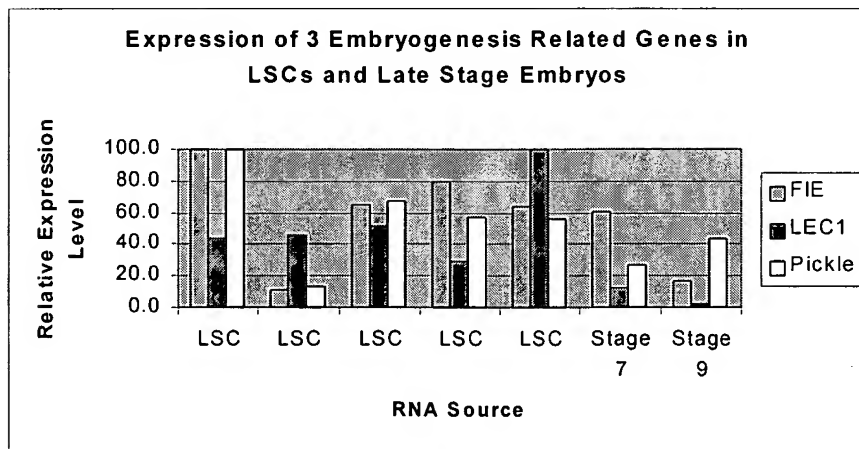


Figure 9A. RNA slot blot probed with pine cDNA clones with similarity to the 'fie' 'lec' or 'pkl' genes from *Arabidopsis thaliana*.
Figure 9B. Quantification of the signals as shown in 9A.

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FIGURE 10

GGGCACAAAGCTCCGCAGCCTGAGCGAGCGTCATTAGCTTGTCAGTCGGA
ACCATTACCCCTTTCCTCTTCGCTGGCTAGCGAATGATAGGGAATGCTAGCC
AGCGAACAAGATTAGAGCACAGAAAGTATAgccAGCGAATCAACAGCATAACAACTTA
GAGATTTCTTGCATTCCCCAGACGGTATCAAGTCATAGTGGAGAATAATCAT
AATAAGATTTGTGAAAATGTTTGTGTAGATTAATGTGTAAAATTCAATCCAT_{ca}
ACCATGAAGTGAAGTGCATTcCGTTTTTAAATGTTTATTGTATTTGAATGAATAAACAGT
TTACACGCGAAAATCCCTACTTTATGTGCGTACAACTATGATTTTTTTTGCAG
TATATAAAAGTTTCCACTATCGTAATTATTTTCCAGATCCGTCTTCTTAACAAC
CCGATTTCTAGCATCCATCTGCGTGGAATAAATCTATTGAATTATTAACCCT
TGTGATTGGCTAAAAAAAAA

**Figure 10. Sequence of LP2-3 differential display fragment,
507 nucleotides, clone LPS-097.**

FIGURE 11

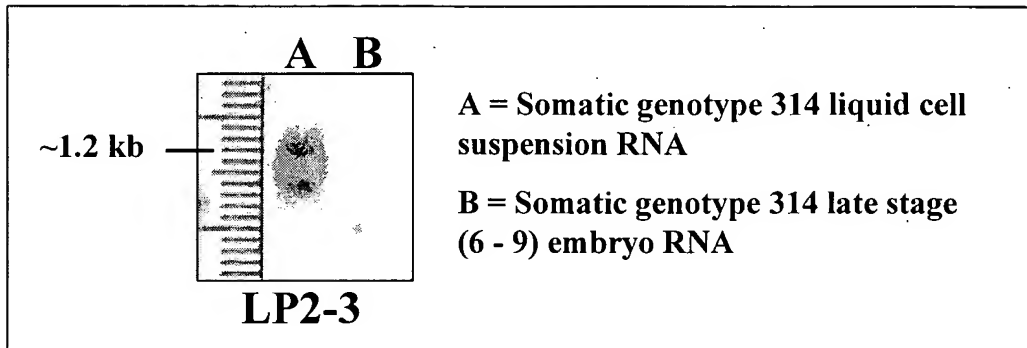
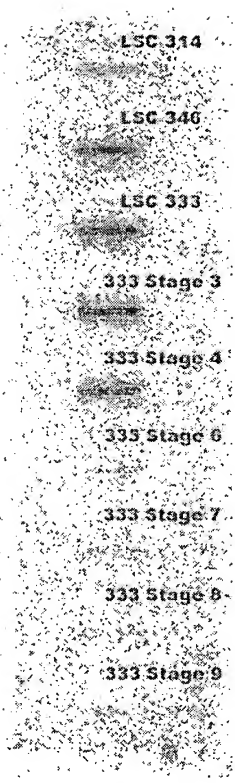


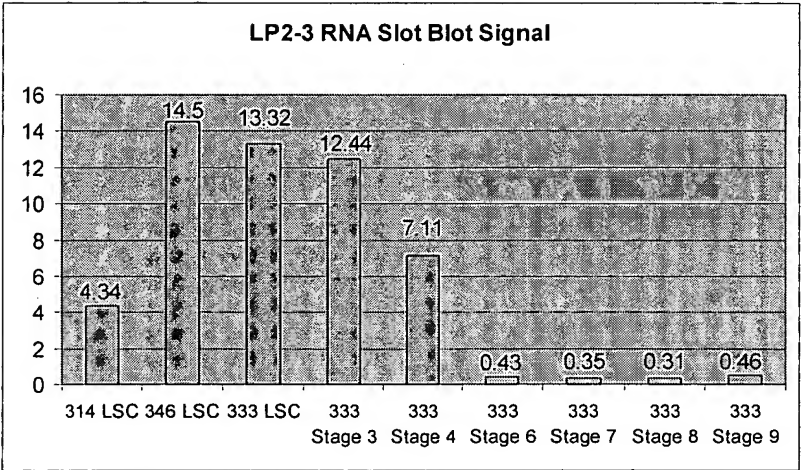
Figure 11. Northern blot from loblolly pine.

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FIGURE 12



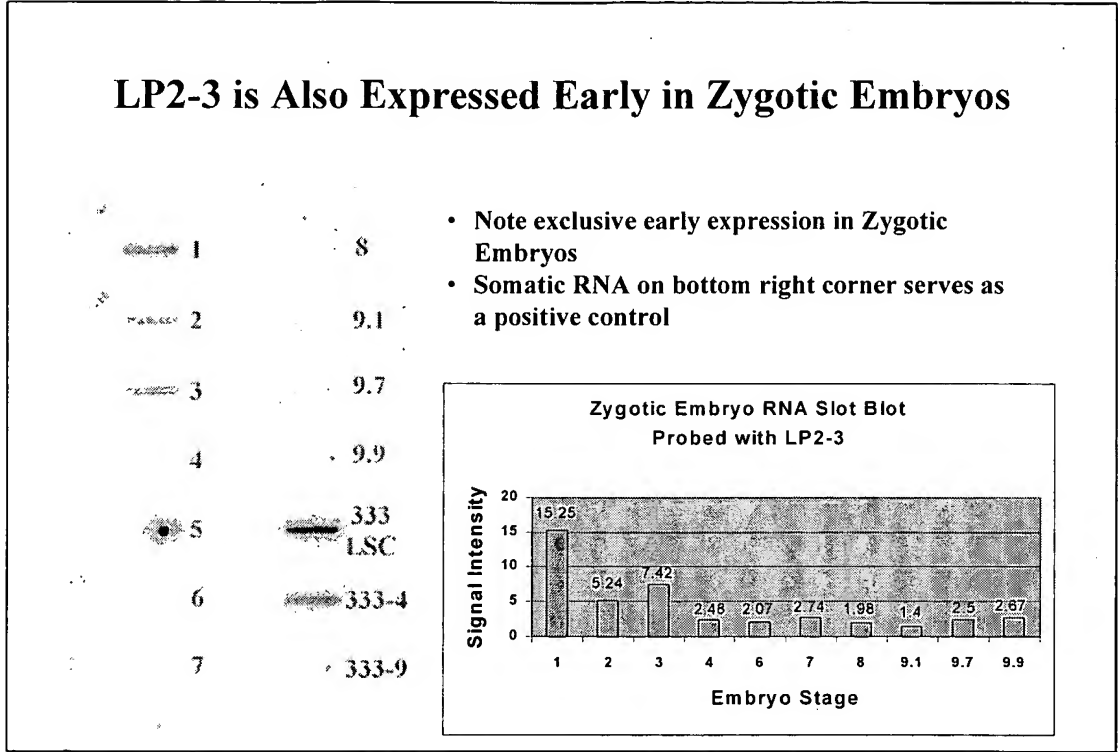
12A



12B

Figures 12A & 12B. Slot blot and quantification of a total RNA probed with an LP2-3-specific probe.

FIGURE 13

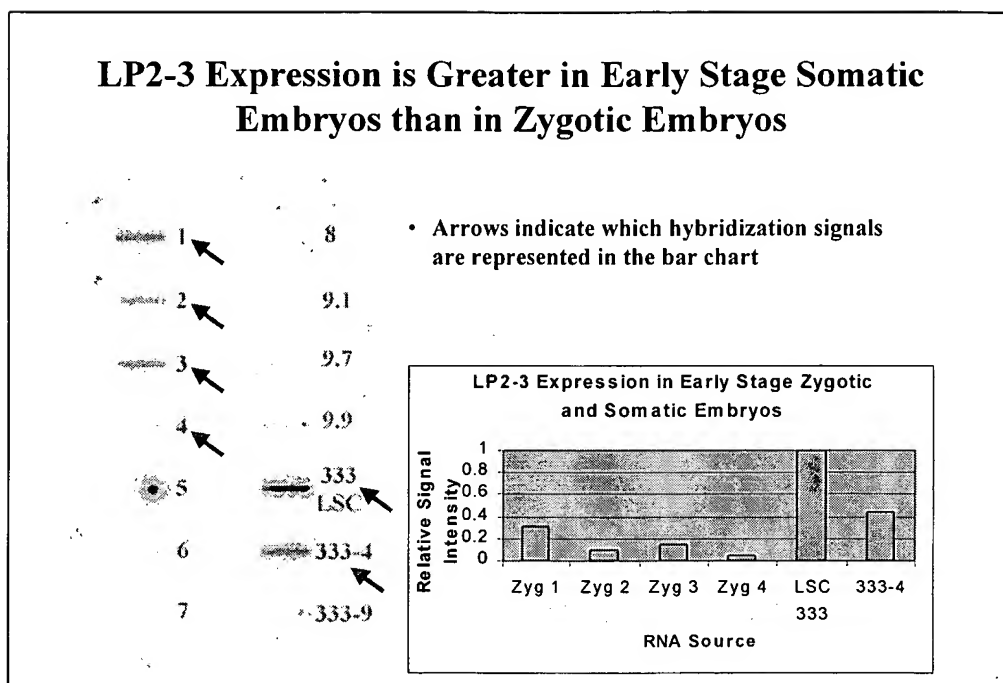


13A

13B

Figures 13A & 13B. Slot blot and quantification of a total RNA probed with an LP2-3-specific probe.

FIGURE 14



14A

14B

Figures 14A & 14B. Slot blot from Fig. 13A and quantified of early stage zygotic embryos compared to early stage somatic embryos.

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